

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Proceedings of the Fifteenth Vertebrate Pest
Conference 1992

Vertebrate Pest Conference Proceedings
collection

March 1992

Front Matter and Contents

Follow this and additional works at: <https://digitalcommons.unl.edu/vpc15>

 Part of the [Environmental Health and Protection Commons](#)

"Front Matter and Contents" (1992). *Proceedings of the Fifteenth Vertebrate Pest Conference 1992*. 30.
<https://digitalcommons.unl.edu/vpc15/30>

This Article is brought to you for free and open access by the Vertebrate Pest Conference Proceedings collection at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Proceedings of the Fifteenth Vertebrate Pest Conference 1992 by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Proceedings

FIFTEENTH

VERTEBRATE PEST CONFERENCE

March 3,4 and 5,1992
Newport Beach, California



Proceedings

FIFTEENTH VERTEBRATE PEST CONFERENCE

**Hyatt Newporter
Newport Beach, California
March 3,4 and 5,1992**

**Arranged by the
VERTEBRATE PEST COUNCIL of the VETEBRATE PEST CONFERENCE**

**Editors
JOHN E. BORRECCO and REX E. MARSH**

ISBN: 0-932857-11-6
Library of Congress Number: 92-85539

Cover illustration by Nona Smith
(Student Artist, UCD)

Published at the University of California, Davis
August 1992

VERTEBRATE PEST COUNCIL 1992

Rex O. Baker	California State Polytechnic University, Pomona
Arthur I. Bischoff	California Department Fish and Game (Retired)
John E. Borrecco	USDA, Forest Service
Robin Breckenridge	California Department Food and Agriculture
Dell O. Clark	California Department Food and Agriculture
Jerry P. Clark	California Department Food and Agriculture
A. Charles Crabb	California State Polytechnic Univ., San Luis Obispo
Maynard W. Cummings	University of California, Davis (Retired)
Richard H. Dana	California Department Food and Agriculture (Retired)
Lewis R. Davis	California Department Food and Agriculture
Greg A. Giusti	University of California, Ukiah
W. Paul Gorenzel	University of California, Davis
Wendy S. Halverson	California Department of Water Resources
Walter E. Howard	University of California, Davis (Emeritus)
Dale E. Kaukeinen	ICI Americas, Inc., Richmond
Michael O. Keffer	California Department Food and Agriculture
James W. Koehler	California Department Food and Agriculture (Retired)
Minoo B. Madon	California Department Health Services
Terry M. Mansfield	California Department of Fish and Game
Rex E. Marsh	University of California, Davis
Thomas K. Palmer	California Department Food and Agriculture
Terrell P. Salmon	University of California, Davis
Robert H. Schmidt	University of California, Hopland
Charles C. Siebe	California Department Food and Agriculture (Retired)
Ronald A. Thompson	USDA, APHIS, Animal Damage Control
Robert M. Timm	University of California, Hopland
Dirk Van Vuren	University of California, Davis

EXECUTIVE BOARD

Chairperson:

John E. Borrecco
Pesticide-Use Specialist, USDA, Forest Service, San Francisco, California

Chairperson-Elect:

Wendy S. Halverson
Associate Agricultural Biologist, Division of Flood Management, Department of Water Resources, Sacramento, California

Past Chairperson (1990):

Lewis R. Davis
Principal Biologist, California Department of Food and Agriculture, Sacramento, California

Past Chairperson (1988):

A. Charles Crabb
Interim Vice-President for Academic Resources, California State Polytechnic University, San Luis Obispo, California

Business Manager:

Terrell P. Salmon
Regional Director, Northern Region, Division of Agriculture and Natural Resources, University of California, Davis

Editor (Managing):

Rex E. Marsh
Specialist in Vertebrate Ecology, University of California, Davis California

CONFERENCE COMMITTEES

Program Co-Chairpersons: Robert M. Timm¹ and Robert H. Schmidt²

¹Superintendent and Extension Wildlife Specialist, University of California Hopland Field Station, Hopland, California

²Assistant Professor, Department of Fisheries and Wildlife, Utah State University, Logan, Utah

Publicity Chairperson: W. Paul Gorenzel

Extension Staff Research Associate, Wildlife and Fisheries Biology, University of California, Davis, California

Arrangements Chairperson: Jerry P. Clark

Senior Biologist, California Department of Food and Agriculture, Sacramento, California

Student Poster Session/Displays and Exhibits: A. Charles Crabb

Academic Affairs, California Polytechnic State University, San Luis Obispo, California

Field Trip Coordinator: Rex O. Baker

Professor, Department of Agriculture/Biology, California Polytechnic University, Pomona, California

Photographic Exhibit Coordinator: Robin M. Breckenridge

Associate Agricultural Biologist, California Department of Food and Agriculture, Sacramento, California

Registration Chairpersons: Dorothy Beadle¹ and Sydni Gillette²

¹Secretary/Editor, Wildlife and Fisheries Biology, University of California, Davis, California

²Executive Assistant, DANR - North Region, University of California, Davis, California

SESSION CHAIRPERSONS

Richard D. Curnow

Assistant Director, USD A Denver Wildlife Research Center, Denver, Colorado

Richard A. Dolbeer

Project Leader, USDA Denver Wildlife Research Center, Ohio Field Station, Sandusky, Ohio

Raymond D. Dueser

Head, Department of Fisheries and Wildlife, Utah State University, Logan, Utah

Michael W. Fall

Chief, Predator Research, USDA Denver Wildlife Research Center, Denver, Colorado

Wendy S. Halverson

Associate Agricultural Biologist, Department of Water Resources, Sacramento, California

James D. Harnett

Orange County Agricultural Commissioner, Anaheim, California

Walter E. Howard

Professor Emeritus, Wildlife and Fisheries Biology, University of California, Davis, California

Terry M. Mansfield

Wildlife Biologist, Wildlife Management Branch, California Department of Fish and Game, Sacramento, California

James E. Miller

Program Leader—Fish and Wildlife, USDA Extension Service, Washington, D.C.

Robert H. Schmidt

Assistant Professor, Department of Fisheries and Wildlife, Utah State University, Logan, Utah

Shakunthala Sridhara

Associate Professor of Zoology, University of Agricultural Sciences, AICRP on Rodent Control, GKVK, Bangalore, India

Robert M. Timm

Superintendent and Extension Wildlife Specialist, University of California Hopland Field Station, Hopland, California

CONFERENCE ASSISTANTS

The conference is made possible by the efforts of many people who work for the most part behind the scene and often receive little or no recognition for their contributions. The Council, Executive Board, and Conference Committee Chairpersons wish to extend special acknowledgment and thanks to the following individuals for their assistance as projectionists, and light and sound technicians.

Delores Brandon
Joe Garcia
Lisa Leondis
Therese Melbar

Gerry Miller
Mark Nestor
Jose Pena
Frank Reyes

John Santos
Jon Shelgren
Rick Williams
Bob Wyatt

Many of these assistants are affiliated with the Agricultural Commissioners Offices of Orange, San Diego, and Los Angeles Counties. We thank the Commissioners for their support and cooperation.



CONTENTS

OPENING REMARKS— FIFTEENTH VERTEBRATE PEST CONFERENCE

John E. Borrecco 1

THE MOST DANGEROUS PEST: "HOMO ENVIRONMENTALUS"

Robert James Bidinotto 2

RESPONSES OF THE ADC PROGRAM TO A CHANGING AMERICAN SOCIETY

Bobby R. Acord 9

CONTROL METHODS RESEARCH PRIORITIES FOR ANIMAL DAMAGE CONTROL

C. Joe Packham and Guy Connolly 12

BACK TO THE FUTURE FOR APHIS'S VERTEBRATE PESTICIDES

Craig A. Ramey, Edward W. Schafer, Jr., Kathleen A. Fagerstone, and Steve D. Palmateer 17

THE POCATELLO SUPPLY DEPOT: BRIEF HISTORY, CURRENT FUNCTIONS, SUPPLIES AVAILABLE, AND ANNUAL OUTPUT

C. Joe Packham 22

WHY BAD THINGS HAPPEN TO GOOD ANIMALS

Robert H. Schmidt 25

DEVELOPING A STRATEGY OF PREDATOR CONTROL FOR THE PROTECTION OF THE CALIFORNIA LEAST TERN: A CASE HISTORY

Peter H. Butchko and Maynard A. Small 29

ENDANGERED SPECIES IN THE PACIFIC ISLANDS: THE ROLE OF ANIMAL DAMAGE CONTROL

Tim J. Ohashi and J. Gary Oldenburg 32

RODENT CONTROL IN THE CONSERVATION OF ENDANGERED SPECIES

A. P. Buckle and M. G. P. Fenn 36

COYOTE CONTROL TO PROTECT ENDANGERED SAN JOAQUIN KIT FOXES AT THE NAVAL PETROLEUM RESERVES, CALIFORNIA

Bryan L. Cypher and Jerry H. Scrivner 42

PROBLEMS WITH MANAGEMENT OF A NATIVE PREDATOR ON A THREATENED SPECIES: RAVEN PREDATION ON DESERT TORTOISES

William I. Boarman..... 48

NONTARGET HAZARDS ASSOCIATED WITH EGG BAITS USED TO CONTROL CORVID DEPREDACTIONS ON ENDANGERED CALIFORNIA LEAST TERN EGGS AT CAMP PENDLETON, CALIFORNIA—1990 (Abstract only)

C. Edward Knittle 53

STERILANTS FOR MANAGING THE POPULATIONS OF RED-WINGED BLACKBIRDS (*Agelaius phoeniceus*)

Andre Cyr and Diane Lacombe..... 54

PROGRESS ON MANAGING CATTAIL MARSHES WITH RODEO® HERBICIDE TO DISPERSE ROOSTING BLACKBIRDS	
George M. Linz, David L. Bergman, and William J. Bleier	56
THE PESTICIDE REREGISTRATION PROCESS: COLLECTIONS OF HUMAN HEALTH HAZARDS DATA FOR 3-CHLORO-P-TOLUIDINE HYDROCHLORIDE (DRC-1339)	
Ray T. Sterner, Donald J. Elias, and Daniel R. Cerven	62
IMPROVED AEROSOL METHODOLOGY FOR APPLYING CPT TO CONTROL ROOSTING SPECIES OF PEST BIRDS	
Brad E. Johns, R. Daniel Thompson, and Kenneth A. Crane	67
AN EVALUATION OF 4-AMINOPYRIDINE BAITS COATED TO DELAY REACTION TIME	
Kelly F. Swindle	70
ALPHA-CHLORALOSE EFFICACY IN CAPTURING NUISANCE WATERFOWL AND PIGEONS AND CURRENT STATUS OF FDA REGISTRATION	
Paul P. Woronecki, Richard A. Dolbeer, Thomas W. Seamans, and William R. Lance	72
MANAGEMENT OF BIRDS ASSOCIATED WITH BUILDINGS AT THE UNIVERSITY OF CALIFORNIA, BERKELEY	
Arthur J. Slater	79
THE STARLING IN EUROPE: MULTIPLE APPROACHES TO A PROBLEM SPECIES	
Chris J. Feare, Pierre Douville de Franssu, and Salvador J. Peris	83
AVITROL USE IN THE PROTECTION OF WINE GRAPES FROM THE HOUSE FINCH (LINNET) IN SONOMA COUNTY	
Pierre Gadd	89
REVIEW OF RESEARCH ON CONTROL OF BIRD PESTS IN AUSTRALIA*	
Mary Bomford	93
URBAN CROW ROOSTS IN CALIFORNIA	
W. Paul Gorenzel and Terrell P. Salmon	97
HIGH FREQUENCY SOUND DEVICES LACK EFFICACY IN REPELLING BIRDS*	
William A. Erickson, Rex E. Marsh, and Terrell P. Salmon	103
AN INTEGRATED APPROACH TO THE MANAGEMENT OF URBAN CANADA GOOSE DEPREDATIONS	
Steven D. Fairaizl	105
ECOLOGICAL APPROACH TO MANAGING PROBLEMS CAUSED BY URBAN CANADA GEESE	
Michael R. Conover	110
SCARECROWS AND PREDATOR MODELS FOR FRIGHTENING BIRDS FROM SPECIFIC AREAS*	
Rex E. Marsh, William A. Erickson, and Terrell P. Salmon	112
NONLETHAL REPELLENTS: THE DEVELOPMENT OF COST-EFFECTIVE, PRACTICAL SOLUTIONS TO AGRICULTURAL AND INDUSTRIAL PROBLEMS	
J. Russell Mason and Larry Clark	115

EVALUATION OF METHYL ANTHRANILATE AS A BIRD REPELLENT IN FRUIT CROPS	
Michael L. Avery	130
ReJeX-iT™ BRAND BIRD AVERSION AGENTS	
Peter F. Vogt	134
EFFICACY OF METHYL ANTHRANILATE AS A BIRD REPELLENT ON CHERRIES, BLUEBERRIES AND GRAPES	
Leonard R. Askham	137
VERTEBRATE PESTICIDES NO LONGER REGISTERED AND FACTORS CONTRIBUTING TO LOSS OF REGISTRATION	
William W. Jacobs	142
FORTY-FIVE YEARS OF ANTICOAGULANT RODENTICIDES — PAST, PRESENT AND FUTURE TRENDS	
Malcolm R. Hadler and Alan P. Buckle	149
A REVIEW OF AVAILABLE ANTICOAGULANTS AND THEIR USE IN THE UNITED STATES	
William B. Jackson and A. D. Ashton	156
THE CHARACTERISTICS AND HISTORY OF BEHAVIOURAL RESISTANCE IN INNER-CITY HOUSE MICE (<i>Mus domesticus</i>) IN THE U.K.	
Richard E. Humphries, Adrian P. Meehan, and Richard M. Sibly	161
RODENTICIDE ECOTOXICOLOGY: PRE-LETHAL EFFECTS OF ANTICOAGULANTS ON RAT BEHAVIOUR	
Paula Cox and R. H. Smith	165
THE EFFECTIVENESS OF DIFETHIALONE (LM 2219) FOR CONTROLLING NORWAY RATS AND HOUSE MICE UNDER FIELD CONDITIONS	
Edward F. Marshall	171
LABORATORY AND FIELD EVALUATION OF DIFETHIALONE, A NEW ANTICOAGULANT RODENTICIDE*	
Y. Saxena, Deepak Kumar, Tanuja Bhandari, and Hema Bhasin	175
STUDIES ON BAIT PREFERENCE AND ACCEPTANCE OF FLOCOUMAFEN IN <i>Rattus rattus</i> INFESTING POULTRY FARMS AND GODOWNS*	
Manju Mathur, A. P. Jain, Nisha Kashyap, and Farzana Parveen	178
A REVIEW OF THE RESULTS FROM LABORATORY TESTS OF SOME RODENTICIDES AGAINST EIGHT RODENT SPECIES	
J. E. Gill	182
EVALUATIONS OF AVERSIVE AGENTS TO INCREASE THE SELECTIVITY OF RODENTICIDES, WITH EMPHASIS ON DENATONIUM BENZOATE (BITREX®) BITTERING AGENT	
Dale E. Kaukeinen and Alan P. Buckle	192
CLINICAL APPROACH TO THE DIAGNOSIS OF DISEASES AND DISORDERS IN PETS AND DOMESTIC ANIMALS SOMETIMES MISTAKEN FOR ANTICOAGULANT TOXICOSIS	
Benny J. Woody	199

WHICH USEFUL TOXICOLOGICAL INFORMATION CAN BE DRAWN FROM STUDIES ON THE HEPATIC FIXATION OF ANTICOAGULANT RODENTICIDES	
J. C. Lechevin and A. Vigie	204
FIELD EVALUATION OF THREE ANTICOAGULANT RODENTICIDES AGAINST <i>Mus musculus</i> POPULATIONS IN APARTMENTAL BUILDINGS IN NEW YORK CITY*	
Ranjan Advani	208
POTENTIATION OF ANTICOAGULANT TOXICITY TO <i>Rattus rattus</i> BY TWO NON-STEROID ANTI- INFLAMMATORY DRUGS*	
Shakunthala Sridhara and T. R. Krishnamurthy	212
CALCIFEROLS AND BAIT SHYNESS IN THE LABORATORY RAT	
C. V. Prescott, Musa El-Amin, and R. H. Smith	218
POPULATION DYNAMICS OF <i>Rattus rattus</i> IN POULTRY AND IMPLICATIONS FOR CONTROL	
Shakunthala Sridhara and T. R. Krishnamurthy	224
UNMASKING MASCALL'S MOUSE TRAPS	
David C. Drummond	229
ADMINISTRATIVE PROCEDURES AND CONTRACTS FOR VERTEBRATE PEST PROGRAMS	
Bruce A. Colvin, Curtis A. Meininger, and Michael J. Grealy	236
INTERACTIVE COMPUTER KIOSKS FOR VERTEBRATE IPM—STATUS REPORT	
Stephen C. Frantz and Robert M. Durlak	241
HOW GLP PROVISIONS INFLUENCE COSTS OF RODENTICIDE FIELD EVALUATIONS	
Richard M. Poch ⁶	245
USE OF MICROCOMPUTERS FOR RANDOMLY ASSIGNING ANIMALS TO TREATMENT GROUPS, FORMULATING BAITS, AND KEEPING RECORDS	
Robert T. Sugihara	249
A REVIEW OF CHEMICAL AND PARTICLE MARKING AGENTS USED FOR STUDYING VERTEBRATE PESTS	
Peter J. Savarie, Brad E. Johns, and Stanley E. Gaddis	252
RODENT DISEASE IMPLICATIONS ASSOCIATED WITH CAMPGROUNDS AND PUBLIC USE AREAS IN CALIFORNIA	
Charles R. Smith	258
CONTROL STRATEGIES TO REDUCE PREHARVEST RAT DAMAGE IN BANGLADESH	
Parvin Sultana and Michael M. Jaeger	261
THE FIELD RAT CONTROL CAMPAIGN, CHIAPAS, MEXICO	
Gillian E. Key and Romeo de la Piedra Constantino	268
RODENT DAMAGE IN HAWAIIAN MACADAMIA ORCHARDS	
Mark E. Tobin	272

REINFESTATION OF <i>Bandicota Bengalensis</i> (GRAY) IN IRRIGATED FIELD HABITAT B. K. Guruprasad.....	277
DEVELOPMENT OF RODENT CONTROL TECHNOLOGY FOR CONFINED SWINE FACILITIES Robert M. Corrigan, Cheryl A. Towell, and Ralph E. Williams	280
IMPACTS OF HOUSE MOUSE ACTIVITY ON FIVE TYPES OF INSULATION Scott E. Hygnstrom.....	286
REFLECTIONS ON CURRENT (1992) POCKET GOPHER CONTROL IN CALIFORNIA Rex E. Marsh	289
SUMMARY OF A USDA FOREST SERVICE POCKET GOPHER TRAPPING CONTRACT* Michael D. Smeltz	296
HELD EFFICACY EVALUATION OF DIPHACINONE PARAFFIN BAIT BLOCKS AND STRYCHNINE OAT GROATS FOR CONTROL OF FOREST POCKET GOPHERS (<i>Thomomys</i> spp.) D. L. Campbell, J. P. Farley, P. L. Hegdal, R. M. Engeman, and H. W. Krupa	299
LABORATORY STUDIES OF MORE DURABLE BAITS FOR CONTROLLING POCKET GOPHERS* Ling Ling Lee, Walter E. Howard, and Rex E. Marsh	303
OBSERVATIONS OF A GAS EXPLODING DEVICE FOR CONTROLLING BURROWING RODENTS* Monty Sullins and Daniel Sullivan	308
EXPOSURE OF PERSONS TO PHOSPHINE GAS FROM ALUMINUM PHOSPHIDE APPLICATION TO RODENT BURROWS Rex O. Baker.....	312
CALIFORNIA GROUND SQUIRREL FIELD EFFICACY STUDY USING 0.005% CHLOROPHACINONE BAIT Brent Hazen and Richard M. Poch6	322
A STUDY OF ACROLEIN AS AN EXPERIMENTAL GROUND SQUIRREL BURROW FUMIGANT* Ross A. O'Connell and Jerry P. Clark	326
ZINC PHOSPHIDE: BLACK-TAILED PRAIRIE DOG—DOMESTIC FERRET SECONDARY POISONING STUDY George H. Matschke, Keith J. Andrews, and Richard M. Engeman	330
HELD EFFICACY EVALUATION OF PELLETTED STRYCHNINE BAITS FOR CONTROL OF MOUNTAIN BEAVERS (<i>Aptodontia rufa</i>) D. L. Campbell, J. P. Farley and R. M. Engeman	335
OPERATIONAL APPLICATION OF DIVERSIONARY FOOD IN YOUNG LODGEPOLE PINE FORESTS TO REDUCE FEEDING DAMAGE BY RED SQUIRRELS Thomas P. Sullivan	340
A ROLE FOR FERTILITY CONTROL WILDLIFE MANAGEMENT IN AUSTRALIA? Mary Bomford and Peter O'Brien.....	344
THE EVALUATION OF ALTERNATIVE TOXINS TO SODIUM MONOFLUOROACETATE (1080) FOR POSSUM CONTROL Charles T. Eason	348

THE DEVELOPMENT OF LONG TERM MANAGEMENT PLANS FOR BOVINE TB POSSUM CONTROL Peter C. Nelson	351
THE EFFECT ON AUSTRALIAN ANIMALS OF 1080-POISONING CAMPAIGNS John C. McIlroy.....	356
A MICROCOMPUTER MODEL FOR PREDICTING THE SPREAD AND CONTROL OF FOOT AND MOUTH DISEASE IN FERAL PIGS R. P. Pech, J. C. McIlroy, M. F. Clough, and D. G. Green	360
COUGAR ATTACKS ON HUMANS: AN UPDATE AND SOME FURTHER REFLECTIONS Paul Beier	365
A CAGE TRAP FOR LIVE-TRAPPING MOUNTAIN LIONS James D. Shuler.....	368
TOXIC BAIT AND BAITING STRATEGIES FOR FERAL CATS Charles T. Eason, David R. Morgan, and B. Kay Clapperton.....	371
ERADICATION OF FERAL GOATS AND SHEEP FROM ISLAND ECOSYSTEMS Dirk Van Vuren.....	377
FERAL GOAT COMMERCIALISATION: THE BEGINNING OF THE END OF ERADICATION? Greg S. Pickles	382
ELECTRONIC FRIGHTENING DEVICES FOR REDUCING COYOTE PREDATION ON DOMESTIC SHEEP: EFFICACY UNDER RANGE CONDITIONS AND OPERATIONAL USE Samuel B. Linhart, Gary J. Dasch, Richard R. Johnson, and Jerry D. Roberts.....	386
FIELD EVALUATION OF THREE TYPES OF COYOTE TRAPS Robert L. Phillips, F. Sherman Blom, Gary J. Dasch, and Jerry W. Guthrie	393
BEHAVIORAL EFFECTS OF REMOVAL OF COYOTE PUPS FROM DENS James A. Till	396
METOCLOPRAMIDE HYDROCHLORIDE DID NOT PREVENT 1080-INDUCED VOMITING IN COYOTES* Jeffrey S. Green.....	400
TOXICITY OF COMPOUND 1080 TO MAGPIES AND THE RELATIONSHIP OF DOSE RATES TO RESIDUES RECOVERED Richard J. Burns and Guy E. Connolly.....	403
CLOSING REMARKS FOR THE FIFTEENTH VERTEBRATE PEST CONFERENCE Wendy S. Halverson	409
CONFERENCE PARTICIPANTS	410

*Paper accepted for publication although not presented.

<p>Editors' note: In the preparation of the proceedings, editorial liberties were taken on very few papers. For the most part, papers appear as originally written except for instances where minor changes were made for the sake of clarity and uniformity of style.</p>
--